What is claimed is:

1. A process for treating a particulate material, comprising the steps of:

- filling said material into a container, said container having a base, an upright wall widening from bottom to top, and a deflection element adjoining said wall in an upper region of said container;

- moving said material in said container in a continuous circulatory movement along said base to said wall and along said wall upward by rotating said wall about a vertical axis of rotation; and

- moving said material along said deflection element by means of an air stream, which is introduced substantially from bottom to top through at least one air gap in a transition region from said wall to said deflection element and, in a region adjacent to said air gap, substantially tangentially with respect to the course of at least one of said wall and said deflection element.

2. The process of claim 1, wherein said air stream is introduced through said at least one air gap at least with a flow component which extends along a surface line of at least one of said wall and of said adjacent deflection element.

3. The process of claim 1, wherein said air stream is introduced through said at least one air gap exclusively with a flow component which extends along a surface line of at least one of said wall and of said adjacent deflection element.

4. The process of claim 1, wherein, before said material has left said deflection element, said air stream is at least partly led away upward out of said container.

5. The process of claim 1, wherein said material is moved along said base by means of a further air stream, which is introduced into said container from

below through at least one air gap in said base and with a flow component running substantially tangentially with respect to said base and oriented towards said wall.

6. The process of claim 1, wherein said material is sprayed with a moist covering medium, which is sprayed onto said material in the form of an annular spray mist before said material passes back to said base, and wherein said spray mist is acted on with an air stream oriented from top to bottom in such a way that said spray mist is oriented substantially horizontally.

7. An apparatus for treating a particulate material, comprising:

- a container having a base, an upright wall widening from bottom to top, and a deflection element adjoining said wall in an upper region of said container in order to deflect a direction of movement of said material;

- said wall being rotatable about a vertical axis of rotation;

- at least a first air gap in a transition region from said wall to said deflection element; and

- an air feed device for feeding an air stream through said at least one first air gap into said container, at least one of said first air gap and said air feed device being configured such that said air stream introduced through said first air gap has a flow component oriented substantially from bottom to top and, in a region adjoining said air gap, oriented substantially tangentially with respect to the course of at least one of said wall and said deflection element.

8. The apparatus of claim 7, wherein, in said transition region from said wall to said deflection element, there is at least a second air gap which is spaced apart vertically from said first air gap, at least one of said second air gap and said air feed device being configured such that an air stream fed in by said air feed device has a flow component oriented substantially from bottom to top and, in a region adjoining said second air gap, oriented substantially

tangentially with respect to the course of at least one of said wall and said deflection element.

9. The apparatus of claim 7, comprising at least a second air gap which is spaced apart vertically from said first air gap, wherein said air feed device has a first feed duct for feeding a first air stream to said first air gap, and at least a second feed duct, separated from said first feed duct, for feeding a second air stream to said at least one second air gap.

10. The apparatus of claim 7, wherein said deflection element has a first section which directly adjoins said wall, said first air gap being present between an upper end of said wall and a lower end of said first section.

11. The apparatus of claim 10, wherein said first section widens from bottom to top with a shape accommodating the shape of said wall in a region of said upper end of said wall.

12. The apparatus of claim 7, wherein said deflection element has a first section which directly adjoins said wall, said first air gap being present between an upper end of said wall and a lower end of said first section, and wherein said first section does not corotate with said wall.

13. The apparatus of claim 7, wherein, in said transition region from said wall to said deflection element, there is at least a second air gap, which is spaced apart vertically from said first air gap, and wherein said deflection element has a first section which directly joins said wall, wherein said deflection element has at least a second section, and wherein said second air gap is arranged between an upper end of said first section and a lower end of said second section.

14. The apparatus of claim 13, wherein said second section, as viewed from a center of said container, is curved concavely, and wherein said lower end of said second section adjoins said upper end of said first section with a form fit.

15. The apparatus of claim 7, wherein, in said transition region from said wall to said deflection element, there is at least a second air gap, which is spaced apart vertically from said first air gap, and wherein said deflection element has a first section which directly joins said wall, wherein said deflection element has at least a second section, and wherein said second air gap is arranged between an upper end of said first section and a lower end of said second section, and wherein said second section does not corotate with said wall.

16. The apparatus of claim 7, wherein said deflection element is air-permeable over a subregion which follows said at least one first air gap.

17. The apparatus of claim 7, wherein a width of said at least one first air gap is adjustable.

18. The apparatus of claim 7, wherein adjustable guide elements are arranged at said at least one air gap.

19. The apparatus of claim 7, wherein said base has at least one air gap, and wherein an air feed device is provided for said base, at least one of said at least air gap in said base and said air feed device for said base being configured in such a way that said air stream introduced through said air gap in said base has a flow component oriented substantially tangentially with respect to said base and toward said wall.

20. The apparatus of claim 19, wherein said base is constructed from a plurality of concentric ring elements with different diameters, which are

arranged in layers partly overlapping one another radially and between which a plurality of air gaps form.

21. The apparatus of claim 7, wherein said base has at least one air gap, and wherein a width of said at least one air gap in said base can be adjusted.

22. The apparatus of claim 7, wherein said base has at least one air gap, and wherein said at least one air gap in said base opens automatically when being acted on with an air stream and closes when said air stream is switched off.

23. The apparatus of claim 7, wherein said base has at least one air gap and wherein said base has air guide elements which additionally impart to an air stream introduced through said at least one air gap in said base a flow component oriented in a direction of rotation of said wall.

24. The apparatus of claim 7, wherein said base does not corotate with said wall.

25. The apparatus of claim 7, wherein said container has a return surface that tapers from top to bottom, on which said material deflected by said deflection element is moved back downward to said base.

26. The apparatus of claim 25, wherein said return surface is supported on said wall via a sliding ring bearing in such a way that said return surface does not corotate with said wall or rotates with a rotational speed lower than the rotational speed of said wall.

27. The apparatus of claim 7, wherein said container has a return surface which is constructed from a plurality of concentric ring elements, which partly overlap one another and between which a plurality of air gaps form.

28. The apparatus of claim 27, wherein said air gaps in said return surface are configured in such a way that an air stream introduced through said air gaps has a flow component oriented from top to bottom and substantially parallel to the course of said return surface.

29. The apparatus of claim 7, wherein a spraying device for spraying said material with a moist covering medium is arranged in said container and has an annular gap nozzle, said nozzle being arranged upright in said container, and said covering medium and spraying air being fed into said nozzle from bottom to top, and wherein said nozzle is acted on from above with an additional air stream.